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ORIGINAL ARTICLE

A new species of *Rhetinantha* (Orchidaceae, Maxillarieae) from Antioquia, Colombia

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Abstract A new species of *Rhetinantha* from Colombian department of Antioquia is described, illustrated and placed within the key for the determination of national *Rhetinantha* species. The taxonomic affinity of the new entity is briefly discussed and the information about its distribution and ecology is provided.

Keywords *Hoehnella* · Orchids · New species · *Rhetinantha* · *Sauvetrea*

Introduction

As described by Ruiz and Pavón 1794, the genus *Maxillaria* is the largest and the most problematic within the subtribe Maxillariinae. The infrageneric variation of the vegetative as well as the floral characters forced numerous reclassification proposals. The necessity of the delimitation from *Maxillaria* smaller, clearly defined groups of species (=genera) were noticed way back—in the beginning of twentieth century five genera were accepted by Cogniaux (1904–1906) as valid taxa segregated from *Maxillaria* s.l. The broader concept and delimitation of the infrageneric sections only were supported by Dunsterville and Garay (1961), Pabst and Dungs (1977) as well as by Atwood and Mora de Retana (1999). The results of the molecular studies of Whitten et al. (2007) indicated the paraphyletic character of *Maxillaria* s.l. hereby suggesting the necessity of the further genera recognition within this taxon.

One of the species group clearly separated in the genetic research was *Maxillaria acuminata* clade embracing plants producing oblong, two-to four foliate, laterally flattened pseudobulbs, with inflorescence arising from bract axils between the second- and third-oldest pseudobulbs, the campanulate flowers with rigid, fibrous, acuminate to aristate tepals and the simple or obscurely three-lobed lip with a linear callus bearing a resinous/lipoidal secretion or waxy white crystals (Whitten et al. 2007). Three genera were segregated from this clade (Table 1): *Rhetinantha* M.A.Blanco, *Sauvetrea* Szlach. & Sitko and the monotypic *Hoehnella* Szlach. and Sitko (Blanco et al. 2007; Szlachetko and Śmiszek 2007; Szlachetko et al. 2012). The first two taxa are distinguished by the the shape and situation of the lip callus. In this concept, *Sauvetrea* comprises 15 and *Rhetinantha* 20 species—all distributed from Mexico to Bolivia and Brazil.

According to the list compiled by Ortiz Valdivieso and Uribe Vélez (2007), eight species of *Rhetinantha* occur in Colombia: *R. acuminata*, *R. friedrichsthallii*, *R. monacensis*, *R. notyliiglossa*, *R. ochroglossa*, *R. scorpioiodea*, *R. unguiculata* and *R. unguilabia*. Their altitudinal range is wide and it extends from the near sea level up to over 2,000 m. a.s.l. (Ortiz Valdivieso and Uribe Vélez 2007).

The comprehensive studies on the Colombian Maxillariinae revealed the existence of undescribed *Rhetinantha* species in the department of Antioquia, where so far only one species of the genus, *R. acuminata*, was reported (Idárraga Piedrahíta et al. 2011). The characteristic and the line-drawing of the novelty are provided together with information about its ecology.

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Table 1 Comparative morphology of Hoehnella, Rhetinantha and Sauvetrea

Character	*Hoehnella*	*Rhetinantha*	*Sauvetrea*
Pseudobulbs/ stems	Plants monopodial. Stem concealed in the basal part by persistent, distichous, imbricating sheaths, leafy above	Plants subcaespitose to long rhizomatous. Pseudobulbs often ridged, covered usually by one or two subtending foliaceous sheaths	Pseudobulbs ellipsoid to ovoid, slightly flattened, frequently ancipitous, subtendend by a pair of non-foliaceous, acute, papery short-lived sheaths
Leaves	Leaves imbricating basally, laterally compressed, acute, subfalcate, thick, fleshy, soft	Leaves 1–4, at the apex of pseudobulb, linear, unequally bilobed at the apex, both lobes rounded	Leaf single, oblong to elliptic-oblong, membraneous to coriaceous, stiff
Inflorescences	Inflorescences axillary, 1-flowered, concealed by the leaves, peduncle bearing 2–4 sheaths	Inflorescences as long as or shorter than leaves, often arising from rhizome bracts a few shoots behind the most recent pseudobulb	Inflorescences from the base of the newly emerging pseudobulbs, much longer than pseudobulbs, usually as long as leaf, the scapes with strongly ancipitous, two-ranked, strongly keeled bracts
Flowers	Flowers tubular, borne singly in leave axils, tepals stiff, thick, with fibrous bundles	Flowers campanulate, with rigid, acuminate perianth parts with strong fibers	Flowers medium-sized, covered by imbricating sheaths, with spreading perianth segments, without strong fibers
Tepals	Sepals and petals dissimilar in size and form	Sepals and petals subsimilar or dissimilar	Sepals and petals subsimilar, narrow
Lip	Lip shortly clawed, oblong-sagittate in outline, very obscurely three-lobed. Callus oblong, thick in the lower half of the lip	Lip clawed, oblong-obovate, ligulate-lanceolate, pandurate to obscurely three-lobed in the lower portion, secreting a sticky, resinous substance in most species. Callus prominent in the basal third or so	Lip sessile, hanging on the column foot, unequally three-lobed. Callus central, ligulate, with sulcate depression along its length
Gynostemium	Gynostemium suberect, slender. Margins of the clinandrium entire. Column foot rudimentary	Gynostemium slender, arcuate. Margins of the clinandrium conspicuously ciliate. Column foot short	Gynostemium suberect, slender. Margins of the clinandrium entire. Column foot short
Fruit and ovary	Terete	Terete	Strongly trigonous

Materials and methods

Dried herbarium specimens were examined according to the standard procedures. Each studied sheet was photographed and the data from the labels were taken. Both vegetative and generative characters of every plant were studied. The presence, shape, and size of the pseudobulb and leaf arrangement were examined first. Then, the construction of the inflorescence and the shape and size of the floral bracts were studied. The morphology of flower, including gynostemium, was examined after its softened in the boiling water. At the end of the measurements, the surface of each floral element was studied under a stereomicroscope.

Acronyms for herbaria cited in this paper followed *Index Herbariorum* (Thiers, continuously updated). The CorelDraw v.12 software was used for the preparation of the distribution map.

Taxonomic treatment

Rhetinantha betancuri Szlach. & Kolan., sp. nov. (Figs. 1, 2)

Species similar to *Rhetinantha monacensis* (Kraenzl.) M. A. Blanco, from which it differs by the oblong pseudobulbs, lip truncate at the base, prominently expanded above it and broadly obovate, centrally concave lip callus.

Type: *Betancur & al. 14699*-Colombia, Antioquia, Mpio. Urrao. Corregimiento La Encarnación. Vereda Calles, Parque Nacional Natural Las Orquideas, en frente de la cabana de Calles, 6°32′20″N 76°14′51″W, alt. 1,350–1,360 m (29 Jan 2011), (COL! holotype).

In rhizomatous, creeping plants, pseudobulbs up to 1.5 cm long and 0.5 cm wide, oblong, laterally compressed, bifoliate. Leaves up to 5.5 cm long and 0.5 cm wide, linear, bilobulate apically, lobules rounded. Peduncle 3–4 cm long,

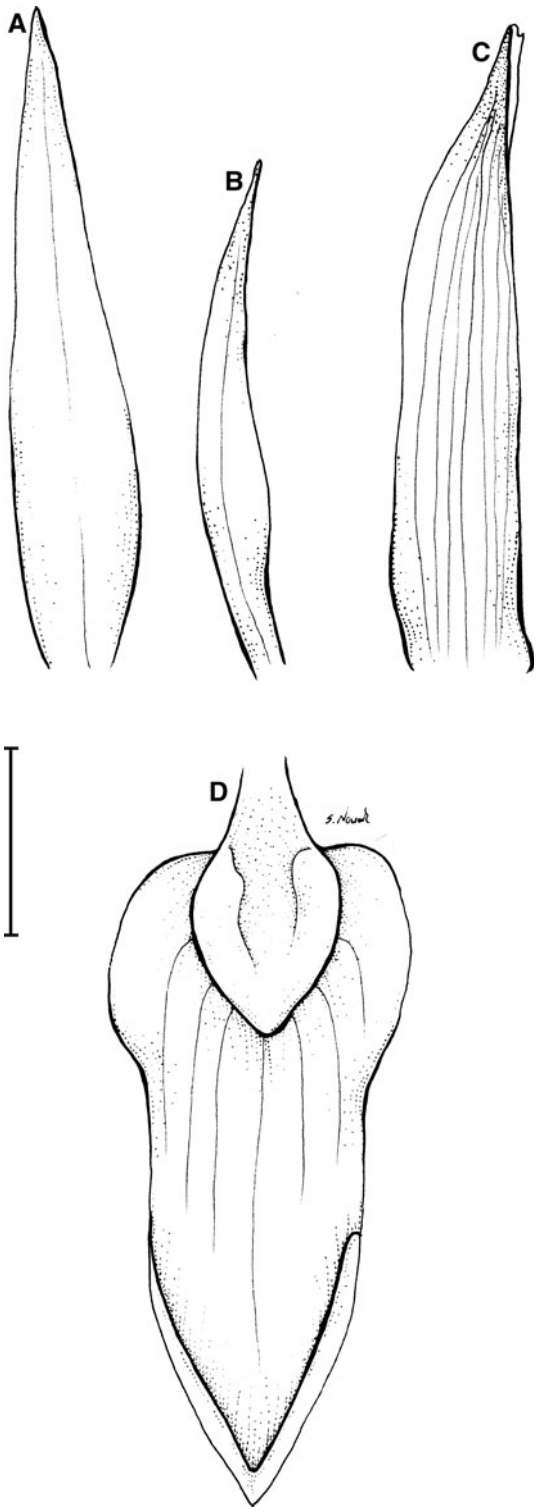

Fig. 1 *Rhetinantha betancuri*—dissected perianth: **a** dorsal sepal, **b** petal; **c** lateral sepal; **d** lip. *Scale bar* 5 mm. Drawn by S. Nowak from the holotype

enclothed with 7–8, imbricating sheaths. Flowers rather small. Floral bracts at 10 mm long, oblong-lanceolate, acute. Pedicellate ovary to 12 mm long. Tepals and lip with fibrous vascular bundles. Dorsal sepal 17 mm long, 3.5 mm wide, narrowly linear, acuminate. Petals 13 mm long, 1.5 mm wide, linear, subulate above the middle, acuminate, falcate. Lateral sepals 16 mm long, 3 mm wide, oblong-lanceolate, acute, keeled outside, subfalcate. Lip shortly but prominently clawed; lamina 9.5 mm long, 4 mm wide, ligulate-lanceolate in outline, base truncate, distinctly expanded above base forming ear-like lateral lobes, apically triangular, prominently thickened along margins, acute; callus broadly obovate, subobtuse towards apex, distinctly concave in the centre. Gynostemium 6 mm long.

Etymology: dedicated to Julio Betancur, co-collector of the type specimen.

Distribution and ecology: so far known only from the Western Cordillera in the Colombian department of Antioquia (Fig. 3). The new species grows epiphytically in premontane rainforest. Alt. 1,350–1,360 m. Flowering in January.

Representative material: *Betancur & al. 14699*-Colombia, Antioquia. Mpio. Urrao, Corregimiento La Encarnación. Vereda Calles, Parque Nacional Natural Las Orquideas, en frente de la cabana de Calles, 6°32′20″N 76°14′51″W, alt. 1,350–1,360 m (29 Jan 2011), (COL!); Betancur & al. 14606-Colombia, Antioquia, Corregimiento La Encarnación, Vereda Calles, Parque Nacional Natural Las Orquideas, en frente de la cabana de Calles, 6°31′9.1″N 76°15′8.4″W, Vegetacion secundaria a la orilla del rio Calles, alt. 1,357 m (25 Jan 2011), (COL!); Betancur & al. 14673-Colombia, Antioquia, Corregimiento La Encarnación. Vereda Calles, Parque Nacional Natural Las Orquideas, en frente de la cabana de Calles, 6°32′20″N 76°14′51″W, alt. 1,350–1,360 m (28 Jan 2011), (COL!).

Taxonomic notes: This species is closely allied to its Colombian congener, Rhetinantha monacensis (Kraenzl.) M. A. Blanco. The new entity is easily separable from the latter, by having narrower, oblong pseudobulbs, peduncle distinctly shorter than pseudobulbs and leaves, and first of all, lip form. It is truncate at the base, distinctly expanded just above it, and lip callus is massive, broadly obovate, concave in the centre.

Key to the Colombian species of *Rhetinantha*

1. Lip entire, linear-ligulate to subpandurate-oblong ……. 2
1* Lip 3-lobed, with rounded to triangular basal lobes and oblong middle lobe …… 7
2. Lip widened in the basal part …….. 3

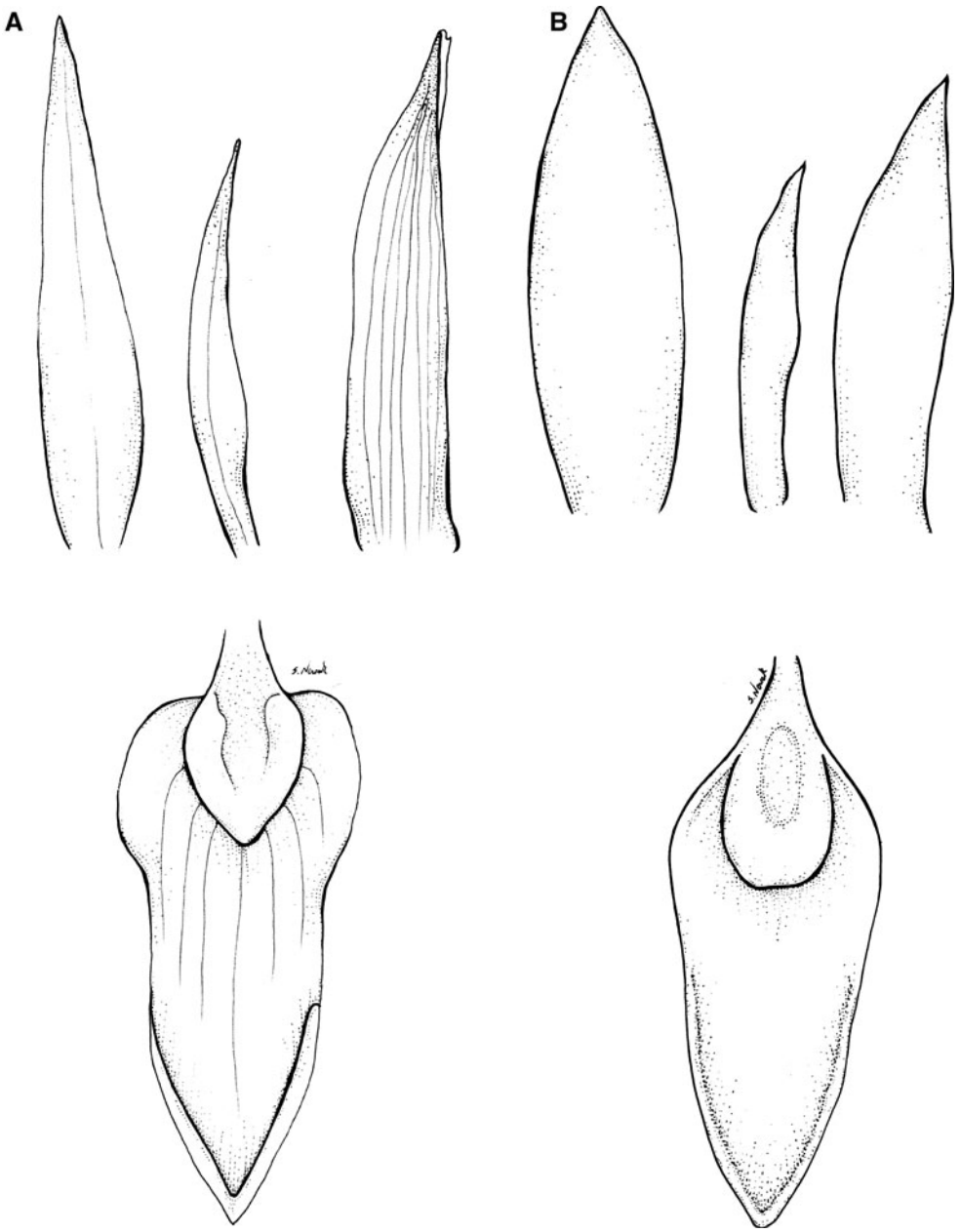

Fig. 2 Comparison of the floral characters of *Rhetinantha betancuri* (**a**) and *R. monacensis* (**b**). Drawn by S. Nowak

2* Lip linear-ligulate to narrowly-elliptic …. 5
3. Lip subpandurate-oblong in outline, obtuse at apex …….. *R. acuminata*
3* Lip ligulate-lanceolate to oblong-ovate, acute at apex …….. 4
4. Peduncle longer than pseudobulbs ……. *R. monacensis*
4* Peduncle shorter than pseudobulbs ……. *R. betancuri*
5. Peduncle short, about 2 cm long …… *R. ochroglossa*
5* Peduncle long, up to 4 cm long ……. 6
6. The uppermost floral bract 11–17 mm long, column 9–11 mm long ……. *R. friedrichsthallii*
6* The uppermost floral bract 16–21 mm long, column 12–14 mm long …….. *R. scorpioiodea*
7. Middle lobe of the lip triangular …….. *R. notyliiglossa*
7* Middle lobe of the lip oblong-ligulate to oblong ……. 8
8. Petals subfalcate-linear, margin minutely papillose-ciliate …… *R. unguilabia*
8* Petals obliquely lanceolate-ligulate, margins entire ……. *R. unguiculata*

Fig. 3 Locality of *Rhetinantha betancuri* in Colombia

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